

# **EXHIBIT C**

Attorney Docket No. 3566.046UBX  
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Filed on behalf of GSI Commerce Solutions, Inc.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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GSI COMMERCE SOLUTIONS, INC.  
Petitioner

v.

LANDMARK TECHNOLOGIES LLC  
Patent Owner of  
U.S. Patent No. 7,010,508  
Issued Mar. 7, 2006  
Appl. No 08/418,772 filed Apr. 7, 1995

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## I. INTRODUCTION

U.S. Patent No. 7,010,508 (“the ’508 Patent”; Ex. 1007) issued March 7, 2006 and is assigned to Landmark Technologies LLC (“Landmark”). Each of claims 1-17 of the ’508 Patent is unpatentable for two independent reasons. First, the specification of the ’508 Patent fails to disclose a structure for many of the means-plus-function elements in the claims. Second, every element of each of those claims was known in the prior art, including the use of so-called “forward-chaining” – the alleged inventive feature of the ’508 Patent.

Each of the ’508 Patent’s claims is unpatentable for failure to comply with 35 U.S.C. § 112 ¶ 2 and 6. A claim element governed by § 112 ¶ 6 is indefinite if the specification does not disclose its corresponding structure(s). *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1338 (Fed. Cir. 2008).<sup>1</sup> To disclose structure for a § 112 ¶ 6 element consisting of a function performed on a programmed, general-purpose computer, the specification must teach the algorithm that performs that function. *Id.* Each claim of the ’508 Patent recites means to perform various functions on a programmed, general-purpose computer, for which

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<sup>1</sup> The ’508 Patent is subject to pre-AIA patentability rules because all claims of the ’508 Patent were filed prior to March 16, 2013.

the '508 Patent fails to teach any corresponding algorithm. Thus, claims 1-17 are indefinite and therefore unpatentable.

Each of the '508 Patent's claims is also unpatentable under 35 U.S.C. § 103. In its initial examination of the '508 Patent application, the Patent Office found that every element of the '508 Patent's claims was disclosed in the inventor's own prior art patent (i.e., U.S. Patent No. 4,359,631 ("Lockwood"); Ex. 1001) except the use of "forward-chaining." However, the use of backward- and forward-chaining was well known in the art at the time of the '508 Patent's invention. As the prior art references cited herein and the declaration of Dr. Sandra Newton (Ex. 1008) show, ordinarily skilled artisans working with expert systems at the time would have combined Lockwood with references showing backward- and forward-chaining regardless of the particular domains in which those references were used. Thus, the prior art references cited herein that teach the use of both backward- and forward-chaining combined with the teachings of Landmark's own admitted prior art patent (i.e., Lockwood) render all claims of the '951 Patent unpatentable.

## **II. GROUNDS FOR STANDING 37 C.F.R. § 42.304(a)**

### **A. Petitioner GSI Commerce Solutions, Inc. Has Standing to File this Petition**

Petitioner GSI Commerce Solutions, Inc., an eBay Enterprise Company, ("GSI") has been charged with infringement because Landmark has sued iRobot Corporation, GSI's customer, for infringement of the '508 Patent. Specifically,

Landmark's complaint and infringement contentions allege infringement based upon iRobot's use of GSI systems and software. *See* generally Ex. 1009. As GSI is obligated to indemnify iRobot Corporation for accusation(s) of patent infringement relating to its use of GSI's products, GSI has standing here. *See Arris Group, Inc. v. British Telecomm. PLC*, 639 F.3d 1368, 1375 (Fed. Cir. 2011).

Petitioner GSI certifies that it is not estopped from challenging the claims on the grounds identified in this petition. 37 C.F.R. § 42.302(b). Further, GSI has not been party to any other post-grant review of the challenged claims under Chapter 32 of title 35, United States Code. Accordingly, GSI has standing to seek post-grant review of the '508 Patent.

**B. The Claims of the '508 Patent Are Covered Business Methods because They Are Directed to Financial Products and Services**

The AIA defines a covered business method ("CBM") patent as "a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service...." AIA § 18(d)(1); *see also*, 37 C.F.R. § 42.301.

The Office noted that the AIA's legislative history demonstrates that a "financial product or service" should be "interpreted broadly," encompassing patents "claiming activities that are financial in nature, incidental to a financial

activity or complementary to a financial activity.”<sup>2</sup> Moreover, the language “practice, administration, or management” is “intended to cover any ancillary activities related to a financial product or service, including ... marketing, customer interfaces, [and] Web site management and functionality....”<sup>3</sup>

The '508 Patent is a covered business method because, for example, claim 1 recites *means for storing information, inquiries, and orders for transactions entered by said operator via said means for entering information; means for transmitting said inquiries and orders to said installation via said means for communicating; means for receiving data comprising operator-selected information and orders from said installation via said means for communicating and means responsive to an order received from said station for updating data in said database including means for correlating to a particular set of data received from said station*. In the specification, the structures described are components of loan processing equipment. Additionally, the very first sentence of the “Summary of the Invention” section of the '508 Patent specification states, “The principal object of this invention is to provide an economical means for screening loan

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<sup>2</sup> 77 Fed. Reg. 48,735 (Aug. 14, 2012) (to be codified at 37 C.F.R. § 42).

<sup>3</sup> Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part II of II*, 21 Fed. Cir. B.J. 4, pp. 635-636 (2012).



applications.” (’508 Patent, 1:47-48, emphasis added.) Further, FIG. 1 illustrates communicating with “FINANCIAL INSTITUTION 101,” which is used “primarily to process loan applications and handle other financial transactions.” ’508 Patent, 1:30-33. Likewise, FIGS. 3-5 describe financial transactions related to loan processing. Finally, Landmark has filed at least fifty-three lawsuits alleging that the financial checkout functions of e-commerce websites infringe the ’508 Patent. *See, e.g.*, the Burberry complaint (Ex. 1010), and the Airgas complaint (Ex. 1011). Therefore, the ’508 Patent qualifies as a CBM patent subject to review under AIA § 18.

**C. Claims 1-17 Do Not Recite a “Technological Invention”**

The AIA excludes “patents for technological inventions” from transitional post-grant review. AIA § 18(d)(1). To determine whether a patent claim is for a technological invention, “the following will be considered on a case-by-case basis: whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and solves a technical problem using a technical solution.” 37 C.F.R. § 42.301(b). When the Office first proposed this definition, commentators asked the Office to revise the definition to clarify that a technological invention could meet one of these tests or the other, or to provide a wholly different test. *See, e.g.*, 77 Fed. Reg. 157, p. 48736-37. The Office refused, holding that a technological invention must meet both tests to avoid classification

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as a CBM patent. This definition is consistent with the AIA’s legislative history and represents “the best policy choice.” *Id.*, p. 48735-36.

Thus, as noted above, to qualify as a technological invention (and, therefore, escape transitional post-grant review) a patent must have: (1) a technological feature that is novel and unobvious; and (2) the patent must solve a technical problem using a technical solution. To institute a transitional post-grant review, a patent need only have one claim directed to a CBM even if the patent includes additional claims directed to technological inventions. *Id.*, p. 48736.

The claims of the ’508 Patent fail both prongs of the technological invention test. First, as discussed below, every element of the claims of the ’508 Patent was well known in the art before the ’508 Patent was invented. Thus, the claims as a whole cannot recite a “technological invention” because they “require no specific, unconventional software, computer equipment, tools or processing capability.” *SAP America, Inc. v. Versata Development Group, Inc.*, slip op. CBM2012-00001, (PTAB Jan. 9, 2013), p. 28 (citing *Dealertrack v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012)).

Second, the ’508 Patent does not solve any technical problem or disclose any technical solution.

### **III. MANDATORY NOTICES (37 C.F.R. § 42.104(a)(1))**

Real Party in Interest: GSI Commerce Solutions, Inc. and eBay Inc.

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Related Matters: Concurrently filed petition for transitional post-grant review of U.S. Patent No. 5,576,951; *Ex Parte* Reexamination (Control No. 90/012,671); *Landmark v. iRobot*, case no. 6:13-cv-411, E.D. Tex. 2013 (Ex. 1009).

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#### IV. STATEMENT OF THE PRECISE RELIEF REQUESTED AND THE REASONS FOR THE REQUESTED RELIEF (37 C.F.R. § 42.22(a))

GSI requests post-grant review and cancellation of claims 1-17 of the '508 Patent based on the grounds of unpatentability detailed below. The prior art relied upon is as follows:

- U.S. Patent No. 4,359,631: “SELF-SERVICE TERMINAL,” Lockwood, et al., filed July 11, 1980 (“Lockwood”), is prior art under 35 U.S.C. § 102(b). (Ex. 1001)

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- “A Model of an Audit Judgment in the Form of an Expert System,” Dungan, Chris W., Ph. D. dissertation, University of Illinois, published May 23, 1983 (“Dungan”), is prior art under 35 U.S.C. § 102(b). (Ex. 1002)
- “GAITSPERT: An Expert System for the Evaluation of Abnormal Human Locomotion Arising from Stroke,” James M. Dzierzanowski, et al., IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING, VOL. BME-32, NO. 11, published NOVEMBER 1985 (“GAITSPERT”), is prior art under 35 U.S.C. § 102(a). (Ex. 1003)
- “The EMYCIN Manual,” William van Melle, et al., published October 1981 (“EMYCIN”), is prior art under 35 U.S.C. § 102(b). (Ex. 1004)
- “Expert System for Diesel Electric Locomotive Repair,” Harold E. Johnson, et al., Journal of Forth Application and Research, vol. 1, no. 1, pp. 7-16, published Sept. 1983 (“Johnson”), is prior art under 35 U.S.C. § 102(b). (Ex. 1005)
- “AN INTERACTIVE VIDEO INFORMATION TERMINAL,” Ronald D. Gordon, Globecom '82, IEEE Global Telecommunications Conference, Conference Record vol. 3 of 3, Miami, Nov. 29 to Dec. 2, 1982 (“Gordon”), is prior art under 35 U.S.C. § 102(b). (Ex. 1006)

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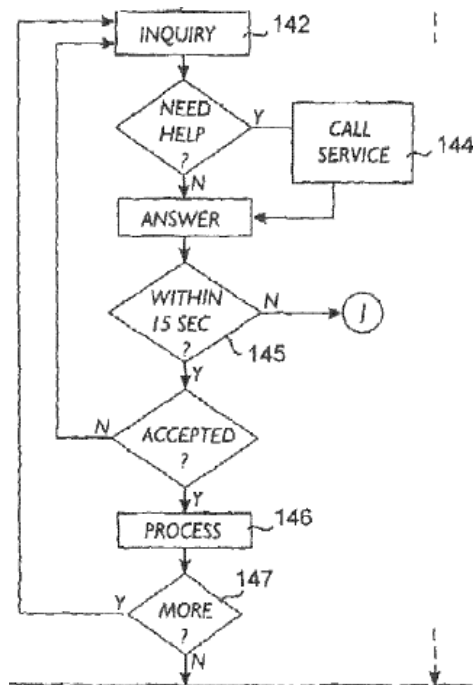
**V. SUMMARY OF THE '508 PATENT AND PROSECUTION HISTORY**

The '508 Patent discloses an automated multimedia system for data processing. '508 Patent, claim 1. The system allows users to make inquiries and place orders. Importantly, the claims require, “means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences.” '508 Patent, claim 1.<sup>4</sup> Landmark has admitted that Lockwood discloses backward-chaining. *See* July 7, 1997 amendment, p. 21. Landmark relied on the following portions of the '508 specification to describe the meaning of “forward-chaining”:

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<sup>4</sup> Claims 8 and 16 (the only other independent claims in the '508 Patent) also include a “backward-chaining and forward-chaining” limitation.

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Once all the proper answers have been accepted, they are processed 146 by the terminal data processor 113. This process may involve analyzing certain key answers in order to identify any element or data that would automatically disqualify the applicant. Depending upon the result of that first analysis, more questions 147 may be presented to the applicant in order to refine the data necessary for a thorough assessment of his qualifications.

'508 Patent, 4:56-64.

'508 Patent, FIG. 4.

Forward-chaining, to which this passage refers, is *analyzing* a customer's answers to the posed questions and then determining whether more questions need to be posed in order to refine the data necessary for a thorough assessment of the customer's qualifications. Simply stated, the '508 Patent discloses a system for resolving inquiries and placing orders that, in response to data entered, will ask additional questions of the user.

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**A. Summary of the Prosecution History**

The prosecution of the original '508 Patent application was extensive - it lasted almost eleven years.<sup>5</sup> Thus, the following summary highlights only the statements, amendments and events in the prosecution history believed to be most relevant to this Petition.

The original '508 Patent application included seven claims, of which one was independent. Landmark added claims 8-17 in a preliminary amendment. In a first office action dated February 3, 1997, all claims were rejected under 35 U.S.C. § 112 (lack of enablement) and 35 U.S.C. § 103 over Lockwood. Landmark filed a

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<sup>5</sup> The application that led to the '508 Patent was filed on April 7, 1995. The application was a continuation of Application No. 08/347,270 filed on November 30, 1994, now U.S. Patent No. 6,289,319, which is a continuation of Application No. 08/096,610 filed on July 23, 1993, now abandoned, which is a continuation of Application No. 07/752, 026 filed on August 29, 1991, now abandoned, which is a continuation of Application No. 07/168,856 filed on March 16, 1988, now abandoned, which is a continuation of Application No. 06/822,115 filed on January 24, 1986, now abandoned, which is a continuation-in-part of Application No. 06/613,525 filed on May 24, 1984, now U.S. Patent No. 4,567,359.

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response on July 7, 1997 amending the claims and attempting to overcome the § 112 rejection.

With respect to the § 103 rejection, Landmark stated that the claimed system was fundamentally different from the earlier Lockwood patent since the system described in that patent was a menu-driven system that employed a rigid, pre-ordained sequence of menus and sub-menus. July 7, 1997 amendment, p. 20. As a result, Landmark argued that “[i]n this primitive type of interactive process, the machine need not analyze the answer because each answer leads progressively to the next predetermined step in accordance with the sequence imposed by the menu tree.” *Id.*, p. 16.<sup>6</sup> This allegedly distinguished the prior Lockwood patented system from that of the ’508 Patent application because, according to Landmark,

The claimed system has the ability of interpreting an answer before moving to the next step. An answer does not progressively call for a preformatted and unique type of new menu display as in the prior art, but opens the gate for a choice between different types of subsequent displays or actions. That choice is made by the system.

Most significant is the fact that in its processing of a user’s entry, the system uses not only that entry but also previously acquired data. That

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<sup>6</sup> Interestingly, Landmark has accused e-commerce systems that operate in this same way of infringement in numerous litigations.



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previously acquired data may have been elicited from the same user through an earlier inquiry or may have been obtained from another source.

*Id.*, pp. 17-18.

Landmark also characterized the claimed invention as a “forward-chaining” system as opposed to a “backward-chaining” system known in the art, such as that disclosed in the earlier Lockwood patent. *Id.*, pp. 21-22 (“Backward-chaining is a way to emulate human inductive reasoning or goal-directed reasoning. It starts with a selection option and works backward to prove its accuracy. .... a backward-chaining system starts with a user having a goal in mind to be proven.”) Landmark described forward-chaining as,

a common term of the art designating a way to emulate human deductive or data-driven reasoning. The data provided by the user enables the search to begin at an appropriate point. Rules that may be available to the system but do not apply to the problem, are eliminated from consideration by the system.

*Id.*, pp. 23-24 (emphasis added). Thus, the basic distinction between forward-chaining and backward-chaining is moving forward to a goal, or moving backward from a goal. Notwithstanding this stated distinction between forward- and backward-chaining, Landmark went on to point out that independent claim 16 “specifically recites the ‘backward-chaining and forward-chaining’, problem solving techniques.” *Id.*, p. 25.

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On October 28, 1997, the examiner issued a final office action maintaining the prior §§ 112 and 103 rejections. Landmark appealed the final rejection to the Board of Patent Appeals and Interferences.

The Board reversed the examiner's § 112 rejections, affirmed the examiner's rejection of claims 1-15 under § 103, and reversed the examiner's § 103 rejection of claims 16 and 17. With respect to claims 16 and 17, the Board stated:

[T]hese claims specifically recited that the acceptance and processing of requests are done “according to backward-chaining and forward-chaining sequences.” While these terms do not appear to be part of the original disclosure, and there may be a question of proper support, there is no rejection, on record, under the written description section of 35 U.S.C. § 112, regarding the now claimed “backward-chaining and forward-chaining sequences.” ... We rely on appellant's explanation of these terms in Paper No. 8 and find that Lockwood does not disclose both “backward-chaining and forward-chaining sequences,” as set forth in instant claim 16.

BPAI decision, dated Sept. 25, 2000, pp. 4-5.

In response to the Board's decision, on November 28, 2000, Landmark filed an amendment in which independent claims 1 and 8 were amended to include references to “backward-chaining and forward-chaining sequences” (the same limitation found in allowable claims 16 and 17).

On April 23, 2002, the examiner issued an office action again rejecting all remaining claims under § 112 on the ground that the “backward-chaining and

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forward-chaining sequences” amendment to the claims was not supported by the original disclosure and that the disclosure failed to provide a written description of how the process of accepting and processing requests was performed according to backward-chaining and forward-chaining sequences.

Landmark ultimately appealed the examiner’s decision to the Board and on August 30, 2005, the Board issued its decision reversing the examiner. In doing so, the Board first noted the examiner’s prior § 112 rejection (which was reversed in the Board’s first decision) involved enablement, while the examiner’s current § 112 rejection involved lack of written description for the “backward-chaining and forward-chaining sequences” limitation. The Board then concluded that despite the fact that the specification did not mention the terms “backward-chaining” and “forward-chaining,” there was nevertheless sufficient support in the specification for those terms.

In light of the Board’s decision, all claims were allowed and the ’508 Patent issued on March 7, 2006.

On September 15, 2012, a Request for *Ex Parte* Reexamination (“EPX”) was filed (Control No. 90/012,671). On July 31, 2013, the examiner issued a final office action rejecting claims 8-15, confirming claims 1-7 and 16-17, and rejecting new claims 18-25 (added during reexam). Claims 8-14 were rejected under 35 U.S.C. § 102(b) as being anticipated by Johnson (the same Johnson reference

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relied on in the instant Petition) and claim 15 was rejected under 35 U.S.C. § 103(a) as being obvious over Johnson in view of *Principles of Rule-Based Expert Systems*, Advances in Computers, Marshall C. Yovits ed., Academic Press Inc., N.Y., Volume 22. Landmark subsequently filed a reply to the final office action in which it asked, *inter alia*, for cancellation of rejected claims 18-25. Landmark also sought to amend rejected independent claim 8. In an advisory action dated October 4, 2013, the examiner refused to enter the proposed amendments. Landmark filed a response on October 10, 2013 essentially asking for reconsideration of the examiner's decision. On October 18, 2013, the examiner issued a second advisory action once again refusing to enter the proposed amendments.

As for confirmed claims 1-7 and 16-17, the requester had cited Lockwood in combination with either of secondary references Dungan<sup>7</sup>, Shortliffe, or Johnson, all of which are systems that use both backward- and forward-chaining. The examiner found that these references **did** present a substantial new question of patentability. Specifically, the examiner conceded that each of the cited secondary references showed the limitation previously deemed lacking in the prior art (i.e., forward-chaining). *See* December 6, 2012, Order Granting Request for *Ex Parte* Reexamination, pp. 23, 27, and 32. Notwithstanding this, in the first office action

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<sup>7</sup> The Dungan reference, like Johnson, is also relied on in the instant Petition.

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the examiner found that Dungan, Shortliffe, and Johnson were not combinable with Lockwood and that they taught away from such a combination because each reference was allegedly domain-specific. *See* February 20, 2013, Office Action, p. 98. Incongruously, the examiner limited Lockwood to the “travel domain,” but then immediately cited a paragraph from the patent discussing the system’s “**versatility**” and how its “**operational sequences**,” in fact, are **domain-independent**. *Id.* (citing Lockwood, 8:39-50; emphasis added).

As set forth more fully below, the examiner erred in her conclusion that Lockwood is not combinable with Dungan or Johnson. In fact, there are numerous reasons to combine the backward- and forward-chaining features of Dungan and Johnson with Lockwood in order to provide “a higher grade of services such as professional advice and counseling” as explicitly suggested by Lockwood itself. *See* Lockwood, 8:49-50.

**B. Priority Analysis for the ’508 Patent**

The Office previously determined in connection with the EPX that the earliest priority date to which all of the claims of the ’508 Patent is entitled is January 24, 1986. *See* the November 28, 2012, Order Granting Request for *Ex Parte* Reexamination, pp. 19-20:

The examiner agrees that ’525/’359 does not appear to provide adequate support for the claims 1-17 of the ’508 Patent under 35 U.S.C. § 112, so the claims are not entitled to the benefit of the

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priority date of that application/patent. Support for these claims, at the earliest, appears to be in CIP appl. 06/822,115, filed January 24, 1986. These claims 1-17 therefore will be examined in light of the 1986 filing date of the '115 CIP.

The '115 continuation-in-part ("CIP") application was filed from parent Application No. 06/613,525, now U.S. Patent No. 4,567,359 ("the '359 Patent"). The application for the '359 Patent is the earliest-filed application in the chain of priority of the '508 Patent. However, as set forth in detail in the EPX request (pp. 15-21), the '359 Patent does not contain any disclosure relating to the limitation that the Office ultimately found to distinguish over the prior art: namely, the capability of processing an answer given by a user in combination with prior answers and/or other data to formulate or compose a new inquiry (referred to as "forward-chaining" by Landmark). There was no support for such forward-chaining claim limitations in the priority chain of the '508 Patent until at least the filing of the '115 CIP application on January 24, 1986.

Landmark recently filed a response to the examiner's final office action in the EPX in which Landmark attempted to rebut the finding of a January 24, 1986 priority date by showing alleged support for all claims dating back to the '359 Patent. *See* September 26, 2013 reply to office action, pp. 13-15. Landmark argues that the key "forward-chaining sequences" claim language finds support in certain figures of the '359 Patent. Specifically, Landmark argues that Fig. 3 shows

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“receiving and processing user input/answers (e.g., FIG. 3, stages 30 and 31) in combination with other information (e.g., FIG. 3, stages 32 and 33) in order to form a new inquiry (e.g., FIG. 4, stage 34 or FIG. 5, stage 50).” *Id.* at p. 15. However, these figures do not support forward-chaining, and therefore the ’508 Patent cannot claim priority to the ’359 patent.

The systems and method of the ’359 Patent do not describe any forward-chaining. In fact, steps 30-33 of Fig. 3 show a flow diagram of asking a customer whether they have received a previous quote for insurance from the system. If the answer is “yes,” steps 31-33 illustrate recalling the quotation, and if the answer is “no,” the questioning continues as depicted in Fig. 4. *See* ’359 Patent at 6:46-50. The questioning shown in Fig. 4 asks the customer what type of insurance they desire as well as pertinent questions for the selected insurance type. Once the data is collected, it is sent to the central data processing center and a corresponding insurance quotation is then sent back. Because the system does not process or analyze the previously entered information to formulate new questions to the user, Figs. 3 and 4 clearly do not depict any type of forward-chaining.

Landmark has asserted that the ’508 Patent discloses forward-chaining at 4:56-64. *See* September 26, 2013 reply to office action, p. 15. That passage refers to *analyzing* the customer’s answers to the posed questions and then determining whether to pose more questions to refine the data necessary for a thorough

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assessment of the customer's qualifications. The '359 Patent, on the other hand, teaches collecting data -- not *analyzing* data.

This distinction between collecting data (as described in the '359 Patent filed in 1984) and *analyzing* data to pose further questions (as described for the first time in the '115 CIP) is further underscored by comparing Fig. 4 of the '359 Patent with Figure 4 of the '115 CIP. In the latter, the box 46 (labeled "process") is responsible for analyzing the data to determine if any of it would disqualify the applicant from obtaining a loan. Depending on the result of that analysis, the system may pose more questions to the applicant. By contrast, there is no box labeled "process" in Figure 4 of the '359 Patent. Instead, the box that appears in the corresponding place in the figure is number 41; that box has the label "quote stored." As is clear from the specification, this is merely a reference to the fact that, after gathering all of the necessary information from the user for a rate quote, the system stores the information before transmitting it to the central data processing center to generate the actual insurance quotation. *See* '359 Patent at 6:59-60: "Each valid answer is stored (41) until all necessary information has been gathered."

Based on the foregoing, Figs. 3 and 4 of the '359 Patent clearly do not depict forward-chaining as required by each of the independent claims of the '508 Patent. Therefore, the examiner was correct in finding that the earliest priority date to



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which the claims of the '508 Patent is entitled is January 24, 1986 – the filing date of the '115 CIP application.

**VI. IDENTIFICATION OF HOW THE CHALLENGED CLAIMS ARE UNPATENTABLE AND SPECIFIC STATUTORY GROUNDS PURSUANT TO 37 C.F.R. § 42.104(b)**

**A. The Claims of the '508 Are Indefinite under 35 U.S.C. § 112 ¶ 2**

Although many claim limitations in the '508 Patent do not have support, the following elements from claim 1 are representative: “means for selectively and interactively presenting to said operator interrelated textual and graphical data describing a plurality of transaction options” and “means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences.”<sup>8</sup>

Under § 112 ¶ 2 it is well-settled law that, for computer-implemented inventions with means-plus-function claiming, the particular structure disclosed in the specification must be more than a general-purpose computer or microprocessor. *Aristocrat*, 521 F.3d at 1333 (“Where ‘the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is

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<sup>8</sup> In addition to claim 1, remaining independent claims 8 and 16 also include the “backward-chaining and forward-chaining sequences” limitation and claim 16 further includes reference to “interrelated textual and graphical data.”

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not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” (Quoting *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999)). Indeed, the corresponding structure for such claims is the algorithm disclosed in the specification. *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1249 (Fed. Cir. 2005). If the specification does not adequately disclose the algorithm, the claim is unpatentable for indefiniteness. *Aristocrat*, 521 F.3d at 1338. *See also, Ex parte Catlin*, appeal no. 2007-3072 (BPAI 2008); *Ex parte Rodriguez*, appeal no. 2008-000693 (BPAI 2009); *Ex parte Gutta*, appeal no. 2008-4366 (BPAI 2009) (all decisions are precedential) and MPEP § 2181. The mere inclusion of flow charts is insufficient written description to change a general-purpose computer into a special purpose computer for purposes of § 112 ¶ 2. For example, in *In re Aoyama*, the Federal Circuit held that a flow chart and its accompanying description – which were quite similar to those found in the ’508 Patent – disclosed insufficient structure under § 112 ¶ 2. *In re Aoyama*, 656 F.3d, 1293 (Fed. Cir. 2011).

The vast majority of the means-plus-function claim elements in the ’508 Patent **have no support in the specification**. For example, claim 1 includes a *means for selectively and interactively presenting to said operator interrelated textual and graphical data describing a plurality of transaction options*. There is no description or teaching in the ’508 Patent as to what is meant by *interrelated*

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*textual and graphical data*. During prosecution, Landmark referred to the fictitious loan officer as the *graphical data* and stated that the textual data was that which is “periodically sent to the terminals.” *See* July 7, 1997 amendment, p. 8. The fictitious loan officer is also the vehicle for “selectively and interactively” presenting information to the operator. The image of the fictitious loan officer is stored on the videodisc 114 (which is part of the terminal 105). The operation of the videodisc is controlled by the data processor 113. However, there are no algorithms disclosed nor any other teaching in the ’508 Patent of how to program either the data processor 113 or the videodisc 114 to “selectively and interactively” present to an operator *interrelated textual and graphical data describing a plurality of transaction options*, as required by the means language of claim 1.

Another example of the lack of support for the means elements of the ’508 Patent is in claim 1: *means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences*. During prosecution, Landmark indicated, “[t]his wording refers to the complex search and retrieval routines more specifically discussed below.” *See* July 7, 1997 amendment, p. 9. Although it is unclear what other portion of the July 7 response Landmark was referring to as including the discussion of the “complex search and retrieval routines,” there is a lengthy discussion of backward- and forward-chaining found on pages 21-25. However, that discussion only provides

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Landmark's definitions of those terms along with examples of how an operator allegedly uses such techniques when requesting a loan quotation. There is absolutely no discussion in those pages (or anywhere else in the response) of where the specification discloses how the "complex search and retrieval routines" are actually structured, programmed or implemented or what algorithms are used to perform them. Finally, because, as Landmark admits, these algorithms are so "complex," the specification should provide extensive details on how to perform these complicated algorithms in order to meet the requirements of § 112 ¶ 2 for this means limitation.

There are many other means elements that find no support in the '508 Patent for similar reasons as described above, but for brevity GSI presents only the two above.

**B. Claims 1-17 Are Unpatentable as Obvious under 35 U.S.C. § 103**

Claims 1-17 are unpatentable as obvious for the reasons provided in § VIII, below.

**VII. CLAIM CONSTRUCTION PURSUANT TO 37 C.F.R. § 42.104(b)(3)**

GSI proposes using the plain and ordinary meaning and broadest reasonable interpretation of the claims except where indicated below.

The Board applies the "broadest reasonable construction." *See In re Swanson*, 540 F.3d 1368, 1377-78, (Fed. Cir. 2008). Thus, the claim construction

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in this post-grant review may be broader than the claim construction of a district court, but it cannot be narrower.

Each of the claims of the '508 Patent recites various elements written in means-plus-function format. Claims employing means-plus-function language cover the corresponding structure, material, or acts described in the specification and their equivalents. The analysis below attempts to define each such means element to apply the prior art; however, GSI maintains that the claims are indefinite.

**A. Claim 1**

***a. means for entering data into said database***

During prosecution, Landmark referred to the communication control unit 106 of Fig. 1 as the supporting structure. *See* July 7, 1997 amendment, p. 5.

***b. program means for storing, processing, updating, and retrieving data items in response to coded requests from stations in communication with said installation***

During prosecution, Landmark referred to the central processor 104, communication control unit 106 and update unit 107 as the supporting structure. *See* July 7, 1997 amendment, pp. 4-6. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the central processor 104, communication control unit 106 or update unit 107 to provide the claimed functions.

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**c. *means for communicating data back and forth between said installation and said station***

This corresponds to the communication control unit 106.

**d. *said station further including: a mass memory and means associated therewith for storing and retrieving textual and graphical data***

This corresponds to the video disk 114 under control of the data processor 113 of Fig. 2. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed functions.

**e. *a video display and means associated therewith for displaying textual and graphical data***

This corresponds to the video screen 118 of Fig. 2.

**f. *means for entering information into said computer***

This corresponds to the touch pad 119 of Fig. 2 or a keyboard.

**g. *means for programming sequences of inquiring messages on said video display in accordance with preset routines and in response to said information***

The “inquiring messages on said video display” refers to those of the fictitious loan officer described in the patent:

The fictitious loan officer takes the applicant through a language selection routine 126-129. In this case, the applicant is asked in both English and Spanish in what language the loan transaction is to be conducted. In this phase of the operation as well as all interactive communications between the loan officer and the applicant, the loan officer explains to the applicant how to enter his answer by means of the touch pad 119.

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'508 Patent, 4:10-17. The image of the fictitious loan officer is stored on the videodisc 114. The processor 113 controls the videodisc 114. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program either the data processor 113 or the videodisc 114 to provide the claimed function.

***h. means for selectively and interactively presenting to said operator interrelated textual and graphical data describing a plurality of transaction options, and for selectively retrieving data from said mass memory***

As set forth more fully in § VII.A, there is no disclosure or teaching in the '508 Patent as to what is meant by “interrelated textual and graphical data” and no process disclosed for actually accomplishing this interrelating function. There is also no teaching anywhere in the '508 Patent or other related applications/patents of how to program either the data processor 113 or the videodisc 114 to provide the claimed function.

***i. means for storing information, inquiries, and orders for transactions entered by said operator via said means for entering information***

This corresponds to the RAM memory 117 of Fig. 2.

***j. means for transmitting said inquiries and orders to said installation via said means for communicating***

This corresponds to the modem 115 under control of the data processor 113 of Fig. 2.

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- k. means for receiving data comprising operator-selected information and orders from said installation via said means for communicating***

This corresponds to the DMA unit 116 of Fig.2.

- l. means for interactively directing the operation of said computer, video display, data receiving and transmitting means, and mass memory comprising means for holding an operational sequencing list***

This corresponds to the videodisc 114 and/or RAM memory 117. There is no teaching anywhere in the '508 Patent or other related applications/patents of how to program either the data processor 113 or the videodisc 114 to provide the claimed function.

- m. means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences***

This corresponds to the data processor 113. However, as set forth more fully in § VII.A, above, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed "backward-chaining and forward-chaining sequences."

- n. means responsive to the status of said computer, display, mass memory, and data receiving and transmitting means for controlling their operation***

This corresponds to the data processor 113. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed functions.



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***o. said means for processing including means for analyzing said operator-entered information***

This corresponds to the data processor 113. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed functions.

***p. means, responsive to said means for analyzing, for presenting additional inquiries in response to said operator-entered information***

This corresponds to the videodisc 114 under control of the data processor 113. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program either the data processor 113 or the videodisc 114 to provide the claimed function.

***q. said computerized installation further including: means responsive to items received from said station for immediately transmitting selected data retrieved from said database to said station***

This corresponds to the communication control unit 106 under control of the central processor 104.

***r. means responsive to an order received from said station for updating data in said database including means for correlating to a particular set of data received from said station***

This corresponds to the central processor 104. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program either the data processor 113 or the videodisc 114 to provide the claimed function.

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**B. Claim 2**

- a. *wherein at least one of said stations comprises a tangible record-generator and means associated therewith to generate a document***

This corresponds to the printer 123.

**C. Claim 5**

- a. *wherein said station further comprises means for generating audio information***

This corresponds to the voice synthesizer 120 and loudspeaker 121.

**D. Claim 7**

- a. *wherein said means for selectively and interactively presenting comprises means for retrieving and combining textual data and graphical data, to process said textual and graphical data into audio-visual signals, and to apply said signals to said video display***

This corresponds to the videodisc 114 under control of the data processor

113. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program either the data processor 113 or the videodisc 114 to provide the claimed functions.

**E. Claim 8**

- a. *means for accepting and processing an user's entry according to backward-chaining and forward-chaining sequences, including:***

These elements describe functions carried out by the data processor 113.

However, as set forth more fully in § VII.A, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed "backward-chaining and forward-chaining sequences."

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***b. means for analyzing and for combining an user's entry with a set of stored data***

In the EPX, the examiner interpreted the function of this claim element to require “the ability to automatically and onsite, i.e. by the computerized station, analyze (i.e., engage in ‘analysis’ of) and combine a user’s entry with a set of stored data.” The structure that accomplishes this function was found to be “a processor onsite/of the computerized station which is run/programmed/implemented by software to automatically analyze (i.e., engage in the ‘analysis’ of) and combine a user’s entry with a set of stored data, and equivalents thereof.” February 20, 2013 non-final action, pp. 16-17.

Even assuming that the data processor 113 is the supporting structure, there is no teaching anywhere in the ’508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

***c. means responsive to said means for analyzing and for combining, for formulating a query and outputting said query to said user***

In the EPX, the examiner interpreted the function of this claim element to require “the ability to, in response to automatically analyzing and combining a user’s entry with a set of stored data, [see discussion of means for analyzing and for combining an user’s entry with a set of stored data, *supra*] formulate onsite a query which is output to the user.” The structure that accomplishes this function was found to be

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the processor onsite/of the computerized station which is also run/programmed/implemented by software to, responsive to automatically analyzing and combining a user's entry with a set of stored data, [see discussion of means for analyzing and for combining an user's entry with a set of stored data, *supra*] formulate a query and a video screen and/or voice synthesizer and loud speaker and/or printer for outputting the query to the user, and equivalents thereof.

February 20, 2013 non-final action, p. 22.

Even assuming that the data processor 113 is the supporting structure, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

***d. means for delivering information to said user***

The applicable structures are the video screen 118 and/or voice synthesizer 120 and loudspeaker 121 and/or printer 123 shown in Fig. 2 and equivalents thereof.

**F. Claim 9**

***a. wherein said means for formulating comprise means for presenting a question to said user***

As set forth above in connection with the analysis of the "means for formulating" element of claim 8, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

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**G. Claim 10**

- a. wherein said means for formulating further comprise means for requesting information for said user***

As set forth above in connection with the analysis of that the “means for formulating” element of claim 8, there is no teaching anywhere in the ’508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

**H. Claim 11**

- a. wherein said means for combining comprise means for searching said set of stored data***

As set forth above in connection with the analysis of the “means for combining” element of claim 8, there is no teaching anywhere in the ’508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

- b. wherein said means for formulating comprise means for selectively retrieving said question from a plurality of stored questions***

As set forth above in connection with the analysis of the “means for formulating” element of claim 8, there is no teaching anywhere in the ’508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

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**I. Claim 12**

**a. *wherein said means for combining further comprise means for matching part of said user's entry with part of said set of stored data***

As set forth above in connection with the analysis of the “means for combining” element of claim 8, there is no teaching anywhere in the ’508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

**b. *wherein said means for requesting comprise means for generating an information request message***

As set forth above in connection with the analysis of the “means for requesting” element of claim 10, there is no teaching anywhere in the ’508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

**J. Claim 13**

**a. *a storage means***

The corresponding structure is either the videodisc 114 or the RAM 117. *See* February 20, 2013 non-final action, pp. 62-63.

**b. *means for addressing said storage means with said request message***

In the EPX, the examiner appears to have interpreted this element to be the data processor 113 (which is responsible for controlling access to the videodisc 114 or the RAM 117). February 20, 2013 non-final action, pp. 67-68. However, there is no teaching anywhere in the ’508 Patent or other related

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applications/patents of how to program the data processor 113 to provide the claimed function.

***c. computer programs for controlling said various means***

In the EPX, the examiner appears to have interpreted this element to be the programs executed by the data processor 113. February 20, 2013, non-final action, pp. 72-73. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

**K. Claim 14**

***a. wherein said means for delivering further comprise means for translating textual information into graphical information***

There is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

**L. Claim 15**

***a. wherein said means for delivering further comprises means for translating textual information into audio-visual information***

In the EPX, the examiner did not explicitly interpret this claim element, but instead appears to have adopted the interpretation associated with claims 8 and 14. February 20, 2013 non-final action, p. 79. However, as set forth above in connection with the analysis of the “means for delivering” element of claim 8, there is no teaching anywhere in the '508 Patent or other related

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applications/patents of how to program the data processor 113 to provide the claimed function.

**M. Claim 16**

**a. *at least one access means***

It is unclear what this element refers to since there is no associated function.

**b. *means for storing, processing, updating, and retrieving data***

Same as the “means associated therewith for storing and retrieving textual and graphical data” of claim 1, discussed above.

**c. *program means for controlling said storing, processing, updating, and retrieving data means in response to coded requests entered on said access means***

This corresponds to the data processor 113. However, there is no teaching anywhere in the '508 Patent or other related applications/patents of how to program the data processor 113 to provide the claimed function.

**d. *means, associated with said mass memory, for storing and retrieving textual and graphical data***

Same as the “mass memory and means associated therewith for storing and retrieving textual and graphical data” of claim 1, discussed above.

**e. *means for processing interrelated textual and graphical data describing a plurality of transaction options, and for selectively retrieving data from said mass memory***

Same as the “means for selectively and interactively presenting to said operator interrelated textual and graphical data describing a plurality of transaction options, and for selectively retrieving data from said mass memory” of claim 1, discussed above.



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***f. means for accepting and processing said requests according to backward-chaining and forward-chaining sequences***

Same as the “means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences” of claim 1, above.

***g. means responsive to said coded requests for automatically displaying selected data***

This corresponds to the video screen 118.

***h. means for interactively directing the operation of said various means, and of said mass memory, said means for directing comprising means for holding an operational sequencing list and means responsive to the status of said mass memory, and said various means, for controlling their operations***

Same as the “means for selectively and interactively presenting to said operator interrelated textual and graphical data describing a plurality of transaction options, and for selectively retrieving data from said mass memory” of claim 1, discussed above.

**N. Claim 17**

***a. wherein each of said stations comprises means for entering and transmitting requests to said installation***

This corresponds to the touch pad 119 and the modem 115 under control of the data processor 113.

***b. means for receiving data from said installation***

This corresponds to the DMA unit 116.

***c. means for displaying said data***

This corresponds to the video screen 118.

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### **VIII. THE PRIOR ART RENDERS OBVIOUS THE CLAIMS 1-17 OF THE '508 PATENT UNDER 35 U.S.C. § 103**

The grounds set forth below are neither redundant nor cumulative. Each of the secondary references (Johnson, Dungan and GAITSPERT) teaches the allegedly inventive feature of backward- and forward-chaining in different contexts. For example, Johnson shows the use of such techniques in a videodisc-based system having “interrelated text and graphics,” while Dungan and GAITSPERT do not. Gordon, however, overcomes this deficiency. Also, while the domain of the secondary references should not matter, as set forth below, to the extent the Office believes otherwise, Dungan’s domain is financial services (*i.e.*, auditing) just as the '508 Patent (*i.e.*, loan processing). In addition, while the Office previously considered Johnson and Dungan during the EPX, GAITSPERT is new art. The EPX also did not include Johnson and Dungan in combination with Gordon and/or EMYCIN.

#### **A. Reasons to Combine Lockwood with either of Johnson, Dungan, GAITSPERT, or Gordon**

A person of ordinary skill in the art would have found it obvious to combine Lockwood with Johnson, Dungan, GAITSPERT, or Gordon for several reasons.

First, Lockwood itself suggests that users may adapt its system and use it in domains other than travel services by “mere software changes.” *See, e.g.*, 8:39-50:

The system can be adapted [*sic*] to various tasks related to the delivery of travel services by mere software changes. .... The terminal

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could also be adapted to the delivery of a higher grade of services such as professional advice and counseling.

*See also*, Newton dec., ¶ 40. Since Lockwood uses software, it would have been straightforward to modify that backward-chaining software to include the forward-chaining described by Johnson, Dungan, and GAITSPERT. Newton dec., ¶ 41. This confirms that modifying the system to provide, for example, the type of loan processing services described in the '508 Patent (which allegedly provides individualized questions and responses) would only require “mere software changes.” Lockwood, 8:40-42; *see also*, Newton dec., ¶¶ 40-41. One would have done so to achieve efficient control by combining both forward- and backward-chaining control strategies. GAITSPERT, p. 936 (“Efficient control can be achieved by combining the strategies to fit the problem domain.”)

Second, as explained below, the prior art provides a teaching, suggestion or motivation to modify Lockwood’s system to be more “intelligent” by gathering additional pertinent information from the user through the use of targeted questions generated from known or gathered information. This would allow the system to provide more personalized results tailored to the user. Newton dec., ¶ 42. A person of ordinary skill in the relevant art looking to improve upon Lockwood’s backward-chaining system to provide more personalized results would have been

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motivated to look at forward-chaining systems, such as those described in Johnson, Dungan, and GAITSPERT because using both forward- and backward-chaining can, for example, be more efficient. *Id.* and GAITSPERT, p. 936.

Johnson expressly teaches a modular system: “a body of knowledge (knowledge base) and a mechanism (inference engine) for interpreting this knowledge.” Johnson, p. 7. Dungan similarly teaches, “it shares with EMYCIN ... the attribute of permitting its system of procedural rationality to be applied to tasks within diverse domains of human knowledge.” Dungan, p. 165. GAITSPERT also teaches using “a general-purpose knowledge-engineering [*sic*] tool” combining forward- and backward chaining for efficiency. GAITSPERT, Abstract and p. 936.

From a computer system design perspective, there is nothing special about how one would go about creating an interactive system for the provision of loan processing services (such as those described in the '508 Patent) as opposed to any other type of service. Newton dec., ¶ 43. As of 1984, many different expert or knowledge-based systems were in use in a vast array of fields. Standard artificial intelligence curriculums in colleges also included the subject as far back as the 1970s. *Id.* The concepts, rules, code, processes, *etc.*, necessary to create a more “intelligent” system (by adding the concept of forward-chaining) would be the same whether the enhanced system related to equipment fault diagnosis or VLSI design. *Id.*

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Furthermore, as of 1984 fungible expert system programming “shells” existed that were capable of being used to develop expert systems in virtually any desired field. Newton dec., ¶ 44. For example, Teknowledge developed and sold the expert system shells M.1 and S.1. *Id.* Similarly, Intellicorp marketed and sold the system shell KEE. *Id.* EMYCIN was another well-known shell system. *Id.* The EMYCIN system shell was domain-independent in the sense that it contained no embedded knowledge. *Id.* Thus, programmers could substitute additional rules or a new knowledge base to deal with different subjects or domains. *Id.* In fact, as of the date of the publication of the EMYCIN manual in 1981, programmers used EMYCIN to develop expert consultation programs for medical problems and for structural analysis, two completely unrelated fields. *Id.* Indeed, Landmark filed infringement complaints against companies operating in diverse domains: robots (iRobot), luxury apparel (Burberry), and industrial gasses and equipment (Airgas), which further evidences Landmark’s interpretation of the breadth of their alleged invention. *See* Exs. 1009-1011.

Third, the obviousness of using the teachings of forward-chaining systems from non-loan processing service domains (such as Johnson, Dungan, and GAITSPERT) to enhance the capabilities of the Lockwood system is further underscored by the non-loan processing related embodiments described in the ’508 Patent itself. Newton dec., ¶ 45. For example, the ’508 Patent states that the system

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“could be applied to other forms of transactions in which information has to be acquired from a customer then processed to a decision or into the performance of a particular task.” ’508 Patent, 5:59-62; *see also*, Newton dec., ¶ 45. Landmark stated that the system allows users to select and purchase stocks and securities, or open self-directed investments such as IRAs and “other complex transactions which normally require a great deal of time and attention on the part of officers of an institution.” ’508 Patent, 6:1-6; *see also*, Newton dec., ¶ 45.

Fourth, the combination of Lockwood with Johnson, Dungan, or GAITSPERT would have yielded the predictable result of improving the results generated by the system by providing more sophisticated and efficient choices and responses (buy using both forward- and backward-chaining) for more personalized purchase recommendations. Newton dec., ¶ 46. This seems to be the very type of “higher grade of services such as professional advice and counseling” that Lockwood predicted would be possible with “mere software changes.” Lockwood, 8:39-50; *see also*, GAITSPERT, p. 936; Newton dec., ¶ 46.

Fifth, another indication of the obviousness of combining the teachings of Lockwood with those of Johnson, Dungan, or GAITSPERT to arrive at a system that performs both forward- and backward-chaining is the fact that Johnson, Dungan, and GAITSPERT themselves perform *both* forward- *and* backward-chaining. Newton dec., ¶ 47. In other words, prior to the filing of the ’508 Patent

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and its ancestors, systems already existed that performed both forward- and backward-chaining, thus reinforcing that adding forward-chaining to the backward-chaining capabilities of Lockwood would have been an obvious method of increasing efficiency. GAITSPERT, p. 936; *see also*, Newton dec., ¶ 47.

As for combining Lockwood with Gordon, this also would have been obvious to one of ordinary skill in the relevant field. Newton dec., ¶ 48. Lockwood describes a self-service terminal having an audio-visual display, *e.g.*, a standard CRT. *Id.* To enhance the usability of the system, it would have been obvious to a person of ordinary skill in the relevant field to substitute the touch screen display shown in Gordon for the CRT. *Id.* This would have provided the user with a simpler method of entering data and choices. *Id.* It also would have allowed the user a simple way to do graphical searching of “interrelated text and graphics” (*e.g.*, selecting from various pictures displayed on the screen). *Id.*

**B. Lockwood in View of Johnson and EMYCIN Renders Obvious Claims 1-17**

**FOR CLAIM 1**, Lockwood teaches *an automated multimedia system for data processing* (*e.g.*, “self service terminal for dispensing voice and video information”). Lockwood, Abstract.

Lockwood teaches *a computerized installation including a database* (*e.g.*, “remote data center”, “remote site computer 42”), *means for entering data into said database* (*e.g.*, “transfer of data between the mass storage and a remote data

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center”), **and a program means** (e.g., “flight schedule program”, “reservation sequence”, “flight ticket delivery program”) **for storing, processing, updating, and retrieving data items** (e.g.,

A second source of data is provided by a mass storage unit 28 which contains information of a more transitory nature such as flight schedules to various destinations, ticket prices, weather information, snow conditions at various skiing resorts, hotel occupancy status and other information useful in the planning of a business trip or vacation. This information is periodically updated via a communication link 24 with a remote control center.

and

When the customer enters the departure point and the destination on the keyboard, two codes are generated which are ... sent via the audio communication system to a remote reservation computer. When the list of available flights has been ... received back from the remote computer center, ...

) **in response to coded requests** (e.g., “request message”) **from stations** (e.g., “self-service terminals”) **in communication with said installation** (e.g., “remote data center”, “remote site computer 42”). Lockwood, 3:17-25; 5:62-65; 7:41-51 and line 62 to 8:2; and 8:7-18 and 32-35.

Lockwood teaches **at least one station** (e.g., “self service terminal”) **including a general purpose computer** (e.g., “INTEL Model 80/20, single board computer”) **and a program** (e.g., “flight schedule program”, “reservation



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sequence”, “flight ticket delivery program”) *applicable to said computer for sending* (e.g., “sent”) *the requests* (e.g., “request message”) *to said installation* (e.g., “remote reservation computer”). Lockwood, Abstract; 5:7-9; 7:41-49 and line 62 to 8:2; and 8:7-18.

Lockwood teaches *means* (e.g., “program for establishing a voice communication”) *for communicating data back and forth* (e.g., “transfer of data”) *between said installation* (e.g., “remote data center”) *and said station* (e.g., “mass storage” on the terminal). Lockwood, 8:32-35.

Lockwood teaches *a mass memory* (e.g., “mass storage unit 28”) *and means associated therewith for storing and retrieving textual and graphical data* (e.g., “The central processor 30 is able to store and subsequently retrieve data”). Lockwood, 6:56-61.

Lockwood teaches *a video display* (e.g., “CRT 10”) *and means associated therewith for displaying textual and graphical data* (e.g., “information or image displayed on the CRT 10”). Lockwood, 3:30-32.

Lockwood teaches *means* (e.g., “keyboard”) *for entering information* (e.g., “requests for services or information”) *into said computer* (e.g., “terminal”). Lockwood, Abstract and 3:32-34.

Lockwood teaches *means for programming sequences of inquiring messages* (e.g., “menu”) *on said video display* (e.g., “CRT”) *in accordance with*

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*preset routines* (e.g., “operating program”) *and in response to said information* (e.g., “requests for services or information”). Lockwood, 3:32-34; 4:48-52; and 7:35-37.

Lockwood teaches *said sequences including instructions* (e.g., “the list of services available is displayed in columnar form with, adjacent to it the key symbol to be entered by the customer in making its selection”) *to an operator* (e.g., “customer”) *of said station* (e.g., “terminal”) *for operating said station* (e.g., “terminal”). Lockwood, Abstract and 7:18-24.

Lockwood teaches *means for selectively and interactively presenting* (e.g., “The information contained in the mass storage unit 28 can be selectively displayed in alpha numerical form on the CRT 10.”) *to said operator* (e.g., “the customer”) *interrelated textual and graphical data* (e.g., “flight schedules”, “travel documentaries”) *describing a plurality of transaction options* (e.g., “display of travel documentaries”, “display of flight schedules”, “securing reservations on a particular flight”, “issuance of a flight ticket”, “control of the vending machine”), *and for selectively retrieving data from said mass memory* (e.g., “The information contained in the mass storage unit 28 can be selectively displayed”). Lockwood, 3:26-34; 6:45-53; and 7:4-9 and 13-24.

Lockwood teaches a *means for storing* (e.g., “central processor 30 is able to store ... data”) *information, inquiries, and orders for transactions* (e.g., “requests

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for services or information”) ***entered*** (e.g., “entered”) ***by said operator*** (e.g., “the customer”) ***via said means for entering information*** (e.g., “keyboard 20”). Lockwood, Abstract; 3:32-34; and 6:59-61.

Lockwood teaches ***means for transmitting*** (e.g., “audio communication system”) ***said inquiries*** (e.g., “requests for services or information”) ***and orders*** (e.g., “securing reservations on a particular flight”) ***to said installation*** (e.g., “remote site computer 42”) ***via said means for communicating*** (e.g., “communication link 24,” “audio connection”). Lockwood, 3:24-25 and 32-34; 6:46-47; 7:3-9; 7:67-8:2; 8:32-35; and generally at 7:10 to 8:38 and FIG. 8:42.

Lockwood teaches ***means for receiving data*** (e.g., “transmitted over the serial channel unit by the modems 38, 39 and the audio controller 24, to the terminal computer”) ***comprising operator-selected information and orders*** (e.g., “flight schedules” and “securing reservations on a particular flight”) ***from said installation*** (e.g., “remote site computer 42”) ***via said means for communicating*** (e.g., “communication link 24”). Lockwood, FIG. 8; 3:17-25; 5:65 to 6:2; and 7:3-9.

Lockwood teaches ***means for interactively directing*** (e.g., “the customer’s dropping a dime in the coinbox [*sic*] slot”, “the customer enter a “D” on the keyboard”, “code is entered via the keyboard”, “an alternate selection to be made by the customer”) ***the operation of said computer*** (e.g., “terminal”), ***video display***

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(e.g., “CRT”), *data receiving and transmitting means* (e.g., “An audio communication link 24”), *and mass memory comprising means for holding an operational sequencing list* (e.g., “operational program stored in the read only memory 31”), *and means responsive to the status of the computer, display, mass memory, and data receiving and transmitting means for controlling their operation* (e.g., “An audio communication link 24”). Lockwood, 2:65 to 3:6; 6:65-68; and 7:10-37.

Johnson teaches *means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences* (e.g., “both backward- and forward-chaining techniques are used”). Johnson, Figure 1 and pp. 7, 8, 11, and 12.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with Johnson to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 21-29.

In a final office action dated October 28, 1997, all claims of the ’508 Patent application were rejected in view of Lockwood. On appeal, the BPAI affirmed the examiner’s rejection of all claims except 16 and 17. With respect to those claims, the BPAI found that “Lockwood does not disclose both ‘backward-chaining and

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forward-chaining sequences,’ as set forth in instant claim 16.” *See* September 25, 2000 BPAI decision at pp. 4-5. Applicant subsequently amended each of the remaining independent claims (1 and 8) to include reference to “backward-chaining and forward-chaining sequences” and all claims were then allowed. However, Johnson teaches this limitation.

Lockwood teaches *said means for processing including means for analyzing* (e.g., “interpret”) *said operator-entered information* (e.g., “information are entered by the customer”) *and means, responsive to said means for analyzing* (e.g., “interpret”), *for presenting additional inquiries* (e.g., “inquiry as to whether the customer wants a hard copy”) *in response to said operator-entered information* (e.g., “information are entered by the customer”). Lockwood, 3:32-34; 4:43-45; and 7:49-53.

Alternatively, Johnson also teaches *said means for processing* (e.g., “troubleshooting process”) *including means for analyzing* (e.g., “deductive process”) *said operator-entered information* (e.g., “new evidence”) *and means, responsive to said means for analyzing, for presenting additional inquiries* (e.g., “requests information”) *in response to said operator-entered information* (e.g., “new evidence”). Johnson, pp. 8-9.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it

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obvious to combine Lockwood with Johnson to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 21-29.

Lockwood teaches *means responsive to items received* (e.g., “customer enters the departure point and the destination on the keyboard”) *from said station* (e.g., “terminal”) *for immediately transmitting selected data retrieved from said database to said station* (e.g., “When the list of available flights has been ... received back from the remote computer center”). Lockwood, Abstract and 7:44-53.

Lockwood teaches *means responsive to an order received* (e.g., “the account number and the amount being charged are sent to a remote credit center”) *from said station* (e.g., “terminal”) *for updating data in said database* (e.g., “the transaction is recorded”) *including means for correlating to a particular set of data* (e.g., “the account number and the amount being charged”) *received from said station* (e.g., “terminal”). Lockwood, Abstract; 8:10-15 and generally at 7:10-8:38.

The wording of this whereby clause is substantially the same as that found at the end of claim 1 of the related Lockwood 6,289,319 patent. During prosecution of the '319 patent, applicant explained the meaning of that substantially similar whereby clause as follows:

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“The final ‘whereby clause’ has been clarified. It is supported by the fact that an entity or person can obtain a loan quotation at one time using one particular terminal, then retrieve that same loan quotation at another time using the same or a different terminal. Also, an entity or person can file a request or obtain a loan quotation from one terminal and another entity (*e.g.*, a bank) can retrieve the request or the quotation almost simultaneously from the central processor using another terminal.”

*See* September 22, 1995 amendment at pp. 6-7.

Lockwood teaches *whereby said system can be used by a plurality of entities* (*e.g.*, “customer,” “travel agency”), *each using one of said stations* (*e.g.*, “terminal”), *to exchange data* (*e.g.*, “transfer of data”), *and to respond to inquiries and orders instantaneously or over a period of time*. Lockwood, Abstract; 1:13; 8:32-35; and FIG. 9 and 10.

FOR CLAIM 2, Lockwood teaches *the data processing system wherein at least one of said stations* (*e.g.*, “self-service terminal”) *comprises a tangible record-generator* (*e.g.*, “flight ticket delivery program”) *and means associated therewith to generate a document* (*e.g.*, “document printer”, “hard copy printer”). Lockwood, 2:8-10 and 8:7-18.

FOR CLAIM 3, Lockwood teaches *the system of claim 1, wherein said textual data comprise codes, words, phrases, numbers, and letters* (*e.g.*, “alpha

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numerical information, symbols, graphic information, etc., typically associated with texts or word-oriented applications”). Lockwood, 5:29-33.

**FOR CLAIM 4**, Lockwood teaches *the system of claim 3, wherein said graphical data include still pictures (e.g., “image”), and moving images (e.g., “video image”).* Lockwood, 3:30-31; 5:22-23, 25-28, and 49-52; 6:19-20; 7:56-58; and 8:16-17 and 22-24.

**FOR CLAIM 5**, Lockwood teaches *the system of claim 4, wherein said station further comprises means for generating audio information (e.g., “audio information”).* Lockwood, 5:22-23 and 49-52.

**FOR CLAIM 6**, Lockwood teaches *the system of claim 1, wherein said mass memory comprises an optical disc (e.g., “video disc 27”).* Lockwood, 6:45-49.

**FOR CLAIM 7**, Lockwood teaches *the system of claim 5, wherein the means for selectively and interactively presenting comprises means for retrieving and combining (e.g., “can be accessed sequentially or randomly”) textual data and graphical data (e.g., “facsimile information”), to process said textual and graphical data into audio-visual signals (e.g., “decoded and displayed after routing through the video multiplexer 35”), and to apply said signals to said video display (e.g., “CRT 10”).* Lockwood, 5:22-24 and 5:49 to 6:2.

**FOR CLAIM 8**, Lockwood teaches *an automated multimedia system for data processing for delivering information (e.g., “self service terminal for dispensing*



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voice and video information”) *on request* (e.g., “requests”) *to at least one user* (e.g., “customer”). Lockwood, Abstract.

Lockwood teaches *at least one computerized station* (e.g., “self-service terminal”). Lockwood, 2:63-65 and FIG. 7.

Johnson teaches *means for accepting and processing* (e.g., “respond to requests”) *an user's entry* (e.g., input of “initial facts,” “additional facts ... asked of the user”) *according to backward-chaining* (e.g., “backward chainer”) *and forward-chaining* (e.g., “forward chainer”) *sequences*. Johnson, Figure 1 and pp. 7, 8, 11, and 12.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with Johnson to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 21-29.

In a final office action dated October 28, 1997, all claims of the ’508 Patent application were rejected in view of Lockwood. On appeal, the BPAI affirmed the examiner’s rejection of all claims except 16 and 17. With respect to those claims, the BPAI found that “Lockwood does not disclose both ‘backward-chaining and forward-chaining sequences,’ as set forth in instant claim 16.” *See* September 25, 2000 BPAI decision at pp. 4-5. Applicant subsequently amended each of the

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remaining independent claims (1 and 8) to include reference to “backward-chaining and forward-chaining sequences” and all claims were then allowed. However, Johnson teaches this limitation.

Lockwood teaches *means for analyzing and for combining an user's entry with a set of stored data* (e.g., “When the customer enters the departure point and the destination on the keyboard, two codes are generated which are used to seek the appropriate information in the mass storage”). Lockwood, 7:44-47.

Lockwood teaches *means, responsive to said means for analyzing and for combining* (e.g., “When the list of available flights has been gathered”), *for formulating a query and outputting the query to said user* (e.g., “displayed on the CRT with an inquiry as to whether the customer wants a hard copy of the schedule”). Lockwood, 7:49-53.

Lockwood teaches *means* (e.g., “CRT 10,” “page printer 11”) *for delivering* (e.g., “delivered”) *information* (e.g., “information”) *to said user* (e.g., “the customer”). Lockwood, 2:68 to 3:2.

**FOR CLAIM 9**, Lockwood teaches *the system of claim 8, wherein said means for formulating comprise means for presenting* (e.g., “displayed on the CRT”) *a question* (e.g., “an inquiry”) *to said user* (e.g., “the customer”). Lockwood, 7:49-53.

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**FOR CLAIM 10**, Lockwood teaches the system *of claim 9, wherein said means for formulating further comprise means* (e.g., “display of a mask from the CRT”) *for requesting information* (e.g., “requesting such information as the flight number, number of passengers”) *for said user* (e.g., “the customer”). Lockwood, 7:62-67.

**FOR CLAIM 11**, Lockwood teaches *the system of claim 9, wherein means for combining comprise means for searching* (e.g., “seek the appropriate information”) *said set of stored data* (e.g., “information in the mass storage”). Lockwood, 7:44-47.

Lockwood teaches *said means for formulating comprise means for selectively retrieving the question from a plurality of stored questions* (e.g., “Once a type of loan has been selected, a real estate loan for example, the fictitious loan officer asks a series of inquiries corresponding to the questions that would be found on a standard loan application form.”) Lockwood, 4:40-44.

**FOR CLAIM 12**, Lockwood teaches *the system of claim 10, wherein said means for combining further comprise means for matching* (e.g., “seek the appropriate information”) *part of said user's entry* (e.g., “customer enters the departure point and the destination”) *with part of said set of stored data* (e.g., “When the list of available flights has been gathered”). Lockwood, 7:44-50.

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Lockwood teaches *said means for requesting comprise means for generating* (e.g., “generates”) *an information request message* (e.g., “request message”). Lockwood, 7:66-68.

**FOR CLAIM 13**, Lockwood teaches *the system of claim 10, which further comprises: a storage means* (e.g., “mass storage unit 28”). Lockwood, 3:17-24.

Lockwood teaches *means for addressing said storage means* (e.g., “seek the appropriate information in the mass storage”) *with said request message* (e.g., “departure point and the destination”). Lockwood, 7:44-47.

Lockwood teaches *computer programs* (e.g., “programmed code numbers”) *for controlling* (e.g., “direct”) *said various means* (e.g., “the various functions of the terminal”). Lockwood, 4:48-52.

**FOR CLAIM 14**, Lockwood teaches *the system of claim 13, wherein said means for delivering further comprise means for translating* (e.g., “interpret”) *textual information* (e.g., “data”) *into graphical information* (e.g., “image represented by the presence or absence of dots”). Lockwood, 5:25-28; *see also*, 7:62-8:2 (“After the mask has been completed by the customer entering his selection, the central processor generates a request message which is sent via the audio communication system to the remote reservation computer.”)

**FOR CLAIM 15**, Lockwood teaches *the system of claim 13, wherein said means for delivering further comprises means for translating* (e.g., “to address”)

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*textual information* (e.g., “code”) *into audio-visual information* (e.g., “documentary”). Lockwood, 7:31-35.

**FOR CLAIM 16**, Lockwood teaches *an automated multimedia data processing system* (e.g., “self service terminal for dispensing voice and video information”). Lockwood, Abstract.

Lockwood teaches *at least two computerized stations* (e.g., “terminal”, “remote site computer 42”). Lockwood, Abstract and 5:1-2.

Lockwood teaches *at least one access means* (e.g., “keyboard”). Lockwood, Abstract.

Lockwood teaches *a mass memory* (e.g., “mass storage unit 28”) *and a database stored in said mass memory* (e.g., “mass storage unit 28 ... contains information of a more transitory nature”). Lockwood, 3:17-25.

Lockwood teaches *means for storing, processing, updating, and retrieving data* (e.g., “mass storage unit 28 is a floppy disc device”). Lockwood, 6:56-61.

Lockwood teaches *program means* (e.g., “flight schedule program”, “reservation sequence”, “flight ticket delivery program”) *for controlling said storing, processing, updating, and retrieving data means* (e.g., “mass storage unit 28”) *in response to coded requests* (e.g., “key symbol to be entered by the customer in making its selection”, “request message”) *entered* (e.g., “entered”) *on*

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*said access means* (e.g., “keyboard”). Lockwood, Abstract; 3:32-34; 6:56-61; 7:18-24, 41-51, and 7:62 to 8:2; and 8:7-18.

Lockwood teaches *means* (e.g., “central processor 30”), *associated with said mass memory* (e.g., “mass storage unit 28”), *for storing and retrieving textual and graphical data* (e.g., “The central processor 30 is able to store and subsequently retrieve data”). Lockwood, 6:56-61.

Lockwood teaches *means for processing* (e.g., “operational program”) *interrelated textual and graphical data* (e.g., “flight schedules”, “travel documentaries”) *describing a plurality of transaction options* (e.g., “display of travel documentaries”, “display of flight schedules”, “securing reservations on a particular flight”, “issuance of a flight ticket”, “control of the vending machine”), *and for selectively retrieving data from said mass memory* (e.g., “The information contained in the mass storage unit 28 can be selectively displayed”). Lockwood, 3:26-28 and 7:4-9.

Lockwood teaches *interrelated textual and graphical data* (e.g., “flight schedules”, “travel documentaries”) *stored in said mass memory* (e.g., “data source 26”, “mass storage unit 28”), *and accessible through interrelated textual and graphical access path means* (e.g., “basic list or menu of the services available”, “video display of the lists of items available for sale”). Lockwood, 3:11-24; 7:14-24; and generally 8:19-27.

Alternatively, Johnson teaches *interrelated textual and graphical data stored in said mass memory* (e.g., “textual information, CAD diagrams or repair sequences from a video disk”), *and accessible through interrelated textual* (e.g., “fixed sequence of questions”) *and graphical access path means* (e.g., “CAD files stored in TEKTRONIX line graphics format and VIDEO pictures stored on a laser video disk”). Johnson, pp. 7-8; *see also* p. 15.

Johnson teaches *means for accepting* (e.g., entered by the user via the keyboard) *and processing* (e.g., “operate”) *said requests* (e.g., “facts... describing the problem to solve”) *according to backward-chaining* (e.g., the inference engine “selects a goal and then verifies whether or not the supporting facts are present or can be inferred”) *and forward-chaining* (e.g., the inference engine “tries to arrive at a goal, starting from the available facts”) *sequences*. Johnson, Figure 1, pp. 7 and 8.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with Johnson to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 21-29.

Lockwood teaches *means responsive to said coded requests* (e.g., “key symbol to be entered by the customer in making its selection”) *for automatically*

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*displaying selected data* (e.g., “the central processor to address the video-disc storage to the area containing the selected documentary”). Lockwood, 7:18-35.

Lockwood teaches *means for interactively directing* (e.g., “the customer’s dropping a dime in the coinbox [sic] slot”, “the customer enter a "D" on the keyboard”, “code is entered via the keyboard”, “an alternate selection to be made by the customer”) *the operation of said various means* (e.g., “CRT”, “central processor”, “list of services available”, “keyboard”, etc.). Lockwood, 7:10-37.

Lockwood teaches *and of said mass memory* (e.g., “mass storage 28”), *said means for directing comprising means for holding an operational sequencing list* (e.g., “The application program is derived from the on-line mass storage 28”) *and means responsive to the status of said mass memory* (e.g., “mass storage 28”), *and said various means, for controlling their operations* (e.g., a “central processor 30,” and the “operating program of the central processor 30” contains “the programmed code numbers necessary to direct the computer or microcomputer to perform the various functions of the terminal”). Lockwood, 4:43-52 and 6:62 to 7:1.

**FOR CLAIM 17**, Lockwood teaches *the system of claim 16, which further comprises a computerized installation* (e.g., “remote site computer 42,” “remote reservation computer”, “remote data center”). Lockwood, 5:63-65; 7:66 to 8:2; and 8:32-35.



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Lockwood teaches *means for entering* (e.g., “keyboard”) *and transmitting* (e.g., “sent”) *requests* (e.g., “requests”) *to said installation* (e.g., “remote site computer 42,” “remote reservation computer,” “remote data center”). Lockwood, Abstract; 3:32-34; 5:63-65; 7:66 to 8:2; and 8:32-35.

Lockwood teaches *means for receiving* (e.g., “received”) *data* (e.g., “data,” “information”) *from said installation* (e.g., “remote data center”). Lockwood, 3:17-25; 5:59 to 6:2; 7:49-51; and 8:15-16 and 32-35.

Lockwood teaches *means for displaying* (e.g., “CRT”) *said data* (e.g., “list of available flights ... received back from the remote computer center”). Lockwood, Abstract and 7:49-52.

**C. Lockwood in View of Dungan, Gordon, and EMYCIN Renders Obvious Claims 1-17**

The following analyzes only limitations relying on Dungan, Gordon, or EMYCIN. Please refer to the analysis comparing Lockwood to the remaining limitations, as discussed in § 0 above, and in Dr. Newton’s claim chart Ex. 1008. The reasons to combine Lockwood with Dungan and Gordon are set forth in § 0 above.

**FOR CLAIM 1**, Dungan teaches *means for processing said operator-entered information, inquiries, and orders according to backward-chaining and forward-chaining sequences* (e.g.,

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After the user enters a certainty factor and the probability of E is updated, the effect of the change on E is propagated (forward chained) through the network, resulting in revision of the hypotheses which lie downstream. Then, after forward chaining, the system again backchains according to its selection rules to find the next most relevant question.

Dungan, p. 172; *see also* pp. 35, 36, 62-63, 64, 153, 170, and 171.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with Dungan and Gordon to reach the predictable result of using both forward and backward chaining to develop an interactive system. EMYCIN, p. 3.

In a final office action dated October 28, 1997, all claims of the ’508 Patent application were rejected in view of Lockwood. On appeal, the BPAI affirmed the examiner’s rejection of all claims except 16 and 17. With respect to those claims, the BPAI found that “Lockwood does not disclose both ‘backward-chaining and forward-chaining sequences,’ as set forth in instant claim 16.” *See* September 25, 2000 BPAI decision at pp. 4-5. Applicant subsequently amended each of the remaining independent claims (1 and 8) to include reference to “backward-chaining and forward-chaining sequences” and all claims were then allowed. However, Dungan teaches this limitation.

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Dungan also teaches *said means for processing including means for analyzing said operator-entered information* (e.g., “The user's answers are incorporated by the control into the expert's rules.”) *and means, responsive to said means for analyzing, for presenting additional inquiries in response to said operator-entered information* (e.g., “The user's answer serves to further update the strength of belief in the hypothesis, immediately following which the process begins again to select the next question. In successive waves or ripples, the strength of belief of the hypothesis is updated through the process of selection, questioning, answer, and revision.”) Dungan, pp. 35 and 63; *see also* pp. 36-37, 62, 64, 153, 170, and 171-172.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with Dungan and Gordon to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3.

**FOR CLAIM 8**, Dungan teaches *means for accepting and processing an user's entry according to backward-chaining and forward-chaining sequences* (e.g.,

After the user enters a certainty factor and the probability of E is updated, the effect of the change on E is propagated (forward chained) through the network, resulting in revision of the hypotheses which lie

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downstream. Then, after forward chaining, the system again backchains according to its selection rules to find the next most relevant question.

) Dungan, p. 172; *see also* pp. 35, 36, 62-63, 64, 153, 170, and 171.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with Dungan and Gordon to reach the predictable result of using both forward and backward chaining to develop an interactive system. EMYCIN, p. 3.

In a final office action dated October 28, 1997, all claims of the ’508 Patent application were rejected in view of Lockwood. On appeal, the BPAI affirmed the examiner’s rejection of all claims except 16 and 17. With respect to those claims, the BPAI found that “Lockwood does not disclose both ‘backward-chaining and forward-chaining sequences,’ as set forth in instant claim 16.” *See* September 25, 2000 BPAI decision at pp. 4-5. Applicant subsequently amended each of the remaining independent claims (1 and 8) to include reference to “backward-chaining and forward-chaining sequences” and all claims were then allowed. However, Dungan teaches this limitation.

**FOR CLAIM 16**, Gordon teaches *interrelated textual and graphical data* (e.g., “overlay mode” “The video disc is used to retrieve an appropriate background image. Text or graphics are then added to provide up to date

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information for schedules, prices, reservations, etc.”) *stored in said mass memory* (e.g., “random access laser video disc player”), *and accessible through interrelated textual* (e.g., keyboard) *and graphical access path means* (e.g.,

Button shaped images using miniature pictures facilitate information retrieval by helping to overcome the language barrier. Pictures are also more quickly recognized, and if carefully prepared, can more easily convey the idea intended. Using small pictures which look like the tops of buttons encourages the user to push the appropriate image to obtain the desired information.

) Gordon, pp. 1356 and 1358. Although Gordon does not explicitly disclose a keyboard, keyboards were the predominant textual input device at the time of Gordon’s publication (1982).

Dungan teaches *means for accepting and processing said requests according to backward-chaining and forward-chaining sequences* (e.g.,

After the user enters a certainty factor and the probability of E is updated, the effect of the change on E is propagated (forward chained) through the network, resulting in revision of the hypotheses which lie downstream. Then, after forward chaining, the system again backchains according to its selection rules to find the next most relevant question.

) Dungan, p. 172; *see also* pp. 35, 36, 62-63, 64, 153, 170, and 171.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it

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obvious to combine Lockwood with Dungan and Gordon to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 39-49.

**D. Lockwood in view of GAITSPERT, Gordon, and EMYCIN  
Renders Obvious Claims 1-17**

The following analyzes only limitations relying on GAITSPERT, Gordon, or EMYCIN. Please refer to the analysis comparing Lockwood to the remaining limitations, as discussed in § 0 above, and in Dr. Newton's claim chart Ex. 1008. The reasons to combine Lockwood with GAITSPERT and Gordon are set forth in § VIII.A, above.

**FOR CLAIM 1**, GAITSPERT teaches a *means for processing* (e.g., "GAITSPERT performs an intelligent review"; "A rule interpreter controls the invocation of rules.") *said operator-entered information, inquiries, and orders* (e.g., "user supplied information") *according to backward-chaining and forward-chaining sequences* (e.g., "The rule interpreter allows backward chaining, forward chaining, or data-driven rule application.") GAITSPERT, pp. 936 and 941; *see also*, p. 938.

Furthermore, EMYCIN illustrates an example of how algorithms are "domain-independent"; therefore, one of ordinary skill would have found it obvious to combine Lockwood with GAITSPERT and Gordon to reach the

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predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 39-49.

In a final office action dated October 28, 1997, all claims of the '508 Patent application were rejected in view of Lockwood. On appeal, the BPAI affirmed the examiner's rejection of all claims except 16 and 17. With respect to those claims, the BPAI found that "Lockwood does not disclose both 'backward-chaining and forward-chaining sequences,' as set forth in instant claim 16." *See* September 25, 2000 BPAI decision at pp. 4-5. Applicant subsequently amended each of the remaining independent claims (1 and 8) to include reference to "backward-chaining and forward-chaining sequences" and all claims were then allowed. However, GAITSPERT teaches this limitation.

GAITSPERT teaches *said means for processing including means for analyzing said operator-entered information* (e.g., "GAITSPERT performs an intelligent review of user supplied information"; "A rule interpreter controls the invocation of rules.") *and means, responsive to said means for analyzing, for presenting additional inquiries in response to said operator-entered information* (e.g., "This backward chaining of rules continues until no more applicable rules are found and the user is asked to supply the required data.") GAITSPERT, pp. 936 and 941; *see also*, p. 938.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with GAITSPERT and Gordon to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 39-49.

**FOR CLAIM 8**, GAITSPERT teaches a *means for accepting* (e.g., “menu-driven information input mechanism”; “Menus are useful for presenting large amounts of information and accepting commands from the user via a terminal.”) *and processing an user's entry* (e.g., “GAITSPERT performs an intelligent review of user supplied information”; “A rule interpreter controls the invocation of rules.”) *according to backward-chaining and forward-chaining sequences* (e.g., “The rule interpreter allows backward chaining, forward chaining, or data-driven rule application.”) GAITSPERT, pp. 936, 938, and 941.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with GAITSPERT and Gordon to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 39-49.

**FOR CLAIM 16**, Gordon teaches *interrelated textual and graphical data* (e.g., “overlay mode” “The video disc is used to retrieve an appropriate



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background image. Text or graphics are then added to provide up to date information for schedules, prices, reservations, etc.”) *stored in said mass memory* (e.g., “random access laser video disc player”), *and accessible through interrelated textual* (e.g., keyboard) *and graphical access path means* (e.g., “Button shaped images using miniature pictures facilitate information retrieval by helping to overcome the language barrier. Pictures are also more quickly recognized, and if carefully prepared, can more easily convey the idea intended. Using small pictures which look like the tops of buttons encourages the user to push the appropriate image to obtain the desired information.”). Gordon, pp. 1356 and 1358. Although Gordon does not explicitly disclose a keyboard, keyboards were the predominant textual input device at the time of Gordon’s publication (1982).

GAITSPERT teaches a *means for accepting* (e.g., “menu-driven information input mechanism”; “Menus are useful for presenting large amounts of information and accepting commands from the user via a terminal.”) *and processing said requests* (e.g., “GAITSPERT performs an intelligent review of user supplied information”) *according to backward-chaining and forward-chaining sequences* (e.g., “The rule interpreter allows backward chaining, forward chaining, or data-driven rule application.”) GAITSPERT, pp. 936, 938, and 941.

Furthermore, EMYCIN illustrates an example of how algorithms are “domain-independent”; therefore, one of ordinary skill would have found it obvious to combine Lockwood with GAITSPERT and Gordon to reach the predictable result of using both forward- and backward-chaining to develop an interactive system. EMYCIN, p. 3; *see also*, Newton dec., ¶¶ 39-49.

In a final office action dated October 28, 1997, all claims of the ’508 Patent application were rejected in view of Lockwood. On appeal, the BPAI affirmed the examiner’s rejection of all claims except 16 and 17. With respect to those claims, the BPAI found that “Lockwood does not disclose both ‘backward-chaining and forward-chaining sequences,’ as set forth in instant claim 16.” *See* September 25, 2000 BPAI decision at pp. 4-5. Applicant subsequently amended each of the remaining independent claims (1 and 8) to include reference to “backward-chaining and forward-chaining sequences” and all claims were then allowed. However, GAITSPERT teaches this limitation.

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**IX. CONCLUSION**

The claims of the '508 Patent are unpatentable because (1) the prior art references cited herein teach the subject matter of claims 1-17 and (2) the '508 Patent lacks sufficient structure as required by § 112 ¶¶ 2 and 6. Accordingly, GSI requests that the Board institute post-grant review by finding that this petition shows that it is more likely than not that claims 1-17 are unpatentable.

The undersigned further authorizes payment for any additional fees or credit of overpayment that might be due in connection with this petition to deposit account 19-0743.

Respectfully submitted,

Date: November 4, 2013

/Thomas C. Reynolds/  
SCHWEGMAN, LUNDBERG & WOESSNER,  
P.A.

## **X. APPENDIX OF EXHIBITS**

This list arranges the exhibits in three groups: prior art (PA), relevant patent (PAT), and other documents (OTH).

### **A. Prior Art (PA)**

Ex. 1001 U.S. Patent No. 4,359,631: “SELF-SERVICE TERMINAL,” Lockwood, et al., filed July 11, 1980 (“Lockwood”), is prior art under 35 U.S.C. § 102(b).

Ex. 1002 “A Model of an Audit Judgment in the Form of an Expert System,” Dungan, Chris W., Ph. D. dissertation, University of Illinois, published May 23, 1983 (“Dungan”), is prior art under 35 U.S.C. § 102(b).

E-mail from Univ. of Ill. Verifying Publ’n Date of Dungan.

Ex. 1003 “GAITSPERT: An Expert System for the Evaluation of Abnormal Human Locomotion Arising from Stroke,” James M. Dzierzanowski, et al., IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING, VOL. BME-32, NO. 11, published NOVEMBER 1985 (“GAITSPERT”), is prior art under 35 U.S.C. § 102(a).

Ex. 1004 “The EMYCIN Manual,” William van Melle, et al., published October 1981 (“EMYCIN”), is prior art under 35 U.S.C. § 102(b).

Ex. 1005 “Expert System for Diesel Electric Locomotive Repair,” Harold E. Johnson, et al., Journal of Forth Application and Research, vol. 1, no. 1, pp. 7-16, published Sept. 1983 (“Johnson”), is prior art under 35 U.S.C. § 102(b).

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Ex. 1006 “AN INTERACTIVE VIDEO INFORMATION TERMINAL,”  
Ronald D. Gordon, Globecom '82, IEEE Global Telecommunications  
Conference, Conference Record vol. 3 of 3, Miami, Nov. 29 to Dec. 2,  
1982 (“Gordon”), is prior art under 35 U.S.C. § 102(b).

**B. Patent (PAT)**

Ex. 1007 U.S. Patent No. 7,010,508 to Lockwood (“the '508 Patent”)

**C. Other Documents (OTH)**

Ex. 1008 Declaration of Dr. Sandra Newton, Ph.D.

Ex. 1009 iRobot Complaint

Ex. 1010 Burberry Complaint

Ex. 1011 Airgas Complaint